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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|------------------------|------------------|
| 10/659,415 | 09/10/2003 | Greg E. Howard | TI-36081 (032350.B529) | 4622 |

23494 7590 05/16/2006

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

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| EXAMINER |
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JOHNSON, JONATHAN J

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| ART UNIT | PAPER NUMBER |
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1725

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,415

Applicant(s)

HOWARD ET AL.

Examiner

Jonathan Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9,11,12,14,15,16,17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,309,891 (Shalon). Shalon teaches a bonding head having a plurality of wire passages formed therein (col. 6, ll. 35-55); where the capillary tips are capable of having wires disposed through the passages (col. 6, ll. 35-55); and a robot to form a first set of stud bumps outwardly from respective first set of bond pads (152); and a wire passage is no more than 1000 microns (col. 7, ll. 1-15); having a rectangular array (figure 9); that will simultaneously engage (figure 1). It is the examiner's position that the wire is a process limitation that holds little patentable weight in the apparatus claim.

Claim Rejections - 35 USC § 103

Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shalon as applied to claim 9 and 17 above, and further in view of US 5,421,503 (Perlberg). Perlberg teaches the bond head is a ceramic (col. 5, ll. 19-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the capillary to utilize a ceramic in order to have a thin wall thickness (see Perlberg col. 5, ll. 15-35)

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shalon as applied to claim 9 and 17 above. Shalon teaches the desirability of using high density tips for use with smaller chips (col. 8, ll. 50-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the capillary to utilize the claimed tips in order to manufacture smaller chips (see Shalon col. 8, ll. 50-67).

Response to Arguments

Applicant argues anticipation requires the disclosure in a single prior art reference of each element of the claim under construction. The examiner agrees. Applicant argues that Shalon does not meet the claim 9 limitation "a plurality of wires disposed through respective ones of the plurality of wire passages". The examiner disagrees. The examiner understands that, as with any other claim limitation, functional language is acceptable so long as it sets definite boundaries on the patent protection sought. In re Barr, 170 USPQ 33 (CCPA 1971). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). To put it another way: While the features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In the instant case,

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as stated in the previous office action, it is the examiner's position that the wire is a process limitation that holds little patentable weight in the apparatus claim. That is, it is the examiner's position that Shalon's capillaries would be capable of having a plurality of wires disposed through the plurality of wire passages. In any event, the examiner notes that Shalon explicitly teaches that the bonding head (figure 1, item 12 and capillary) have passages (col. 6, l. 35, the passages in the capillary) that have wires through the ones of the passages (col. 6, ll. 40-46 and 60-65).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

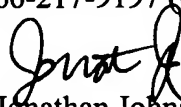
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 571-272-1177. The examiner can normally be reached on M-Th 7:30 AM-5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jonathan Johnson
Primary Examiner
Art Unit 1725